

CLAIMS

What is claimed is:

1. A microprocessor-based gas meter for metering the flow rate of gas, comprising:
 - a main body, having at least a chamber and a mounting slot substantially parallel to and separated from said chamber; a diaphragm mounted in said chamber for dividing said chamber into a plurality of chambers and capable of pushing gas out of said chambers; a control circuit board, mounted in said mounting slot, comprising at least a sensor assembly for sensing gas pressure;
 - a cover, mounted on top of said main body and connecting to said chambers, having a gas inlet and a gas outlet for gas intake and gas output from said chambers;
 - a cutoff valve, mounted under said gas inlet, for cutting off gas intake when said control circuit board detects an abnormal condition; and
 - a metering unit, mounted in said main body, for metering gas flow from vibration of said diaphragm.
- 15 2. A microprocessor-based gas meter according to claim 1 wherein the cross-section of said mounting slot is of an H-shape.
3. A microprocessor-based gas meter according to claim 1 wherein the cross-section of said mounting slot is of a T-shape.
4. A microprocessor-based gas meter according to claim 1 wherein the cross-section of said mounting slot is of an I-shape.
- 20 5. A microprocessor-based gas meter according to claim 1 wherein said main body further comprises a plurality of cone via holes at the bottom thereof for air ventilation of interior of said main body.

6. A microprocessor-based gas meter according to claim 1 wherein said sensor assembly further comprises a vibration sensor for sensing the magnitude of vibration encountering.

7. A microprocessor-based gas meter according to claim 6 wherein said control circuit board activates said cutoff valve and cuts off gas intake when said vibration sensor detects a vibration magnitude exceeding a predetermined value.

8. A microprocessor-based gas meter according to claim 1 wherein said cutoff valve comprises a universal connector and a step motor; said step motor moves said universal connector to close said gas inlet when said control circuit board detects an abnormal condition.

9. A microprocessor-based gas meter according to claim 1 wherein said cutoff valve moves toward and seals said gas inlet when being activated.

10. A microprocessor-based gas meter according to claim 1 wherein said abnormal condition is that said sensor assembly detects a gas intake pressure higher than a predetermined value.

11. A microprocessor-based gas meter according to claim 1 wherein said abnormal condition is that said sensor assembly detects a gas pressure variation over a predetermined value instantly.

12. A microprocessor-based gas meter according to claim 1 wherein said abnormal condition is that said sensor assembly detects an unstable gas pressure.

13. A microprocessor-based gas meter according to claim 1 wherein said metering unit comprises:

a rod, mounted on one side of said chamber;

a wing, connected to a lower portion of said rod, having a magnet adhered to central portion of said diaphragm; and

a reed switch and a flow metering logic unit, set in said control circuit board;

therefore, when said diaphragm vibrates as gas flows, said magnet activates said reed switch and generates signals for said flow metering logic unit to meter the flow rate of gas.

5 14. A microprocessor-based gas meter according to claim 1 further comprises a communication unit connected to said control circuit board for transferring gas-metering data to a gas company.

15. A microprocessor-based gas meter according to claim 14 wherein said communication unit transfers gas-metering data through telephone lines.

10 16. A microprocessor-based gas meter according to claim 14 wherein said communication unit transfers gas-metering data through computer networks.

17. A microprocessor-based gas meter according to claim 14 wherein said communication unit transfers abnormal pressure information when said sensor assembly detects an abnormal gas pressure condition.

15 18. A microprocessor-based gas meter according to claim 1 further comprises a display unit for displaying gas metering data.

19. A microprocessor-based gas meter according to claim 18 wherein said display unit further comprises a start button for starting display of said gas metering data when being pressed.

20 20. A microprocessor-based gas meter according to claim 18 wherein said display unit comprises light emitting diodes.